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Medicine and linguistics: A necessary symbiosis in medical titles

by Viviana Soler

That titles are expected to be the doors that allow readers to access the content of a text independently of its nature, gender, register, and whatever other ornaments such text contains, is a general truth. However, do titles fulfil this requisite? In an attempt to answer this query, let us consider the following medical titles:

- 1) *Less Yin, More Yang: Confronting the Barriers to Cancer Immunotherapy*
- 2) *Is the Emperor Wearing Clothes? Clinical Trials of Vitamin E and the LDL Oxidation Hypothesis*
- 3) *Variants in the α -Methylacyl-CoA Racemase Gene and the Association with Advanced Distal Colorectal Adenoma*
- 4) *Prevalence and prognostic value of perfusion defects detected by stress technetium-99m sestamibi myocardial perfusion single-photon emission computed tomography in asymptomatic patients with diabetes mellitus and not known coronary artery disease*
- 5) *17AAG: Low Target Binding Affinity and Potent Cell Activity—Finding an Explanation*
- 6) *Is Metabolic Syndrome A Risk Factor for Colorectal Adenoma?*
- 7) *Viral infection, inflammation, and the risk of idiopathic dilated cardiomyopathy: can the fire be extinguished?*
- 8) *Genes, Aging and the Future of Longevity*
- 9) *Autocrine epidermal growth factor signaling stimulates directionally persistent mammary epithelial cell migration*
- 10) *Obesity—A Friends-and-Family Problem*

In keeping with our opening metaphor, medical titles are then the doors between readers (peers, scientists, the general public, etc.) and the content of the papers to which they belong. In this sense, the majority of the above-listed titles do fulfil this requisite as they clearly introduce the audience to the medical object of study. Also, and even in the case of titles 2) and 7) above containing stylistically ‘suggestive and enigmatic hints’ [1], peers will certainly know the object of study these papers address. In view of this, it may be concluded that the above-listed medical titles conform to our opening metaphor and they are therefore appropriate.

Still, which parameters can we use to assign a 100% appropriateness and effectiveness to the above-listed medical titles? The answer to this query is rather complex because

they are all appropriate in the eyes of peers. However, not all of them may share the same privilege in the eyes of librarians or indexers, who may be faced with difficulties at the moment of correctly indexing papers whose titles are particularly those of type 2) and 7) above. Even more difficulties may arise if translators are asked to translate all the above-listed titles. For example, if a translator is asked to translate title 4) from English into Spanish he or she will be confronted with very heterogeneous difficulties. One of such difficulties concerns ‘economy’ because in English this title contains 30 words while in Spanish 40 words are necessary to convey the same message! Translators, who, in general, are not medical doctors, may therefore get crazy at the request of having to shorten titles of this nature for Spanish journals. Other types of difficulties for translators involve specific linguistic issues. For example, in title 9) the adverb ‘directionally’ poses interesting difficulties to translators who will surely doubt whether it modifies the verb “stimulates” or the nominal group “persistent mammary epithelial cell migration”. Maheshwari et al [2], the authors of this paper, claim “that autocrine presentation of epidermal growth factor (EGF) at the plasma membrane in a protease-cleavable form provides these cells [i.e. epithelial cells] with an enhanced ability to migrate persistently in a given direction, consistent with their increased capability for organizing into gland-like structures”. This observation may then lead us to assume that epithelial cell migrations are persistently directional rather than directionally persistent. What do you think? If this assumption were correct, title 9) would therefore require a different grammatical pattern from that originally conveyed to read “*Autocrine epidermal growth factor signaling stimulates persistently directional mammary epithelial cell migration*”.

Last but not least, another type of potential readers of medical articles includes the general public who also has the right to issue an opinion on the above-listed medical titles. However, in this particular case, both the specificity and the highly-specialized scientific register of these titles leave the general public aside and in silence.

Other interesting queries arise in relation to the titles listed, namely, i) are they genre-indicators (i.e. titles of research papers, review papers, chapters, posters, short communications, mini-reviews, books)?; ii) are they register-indicators (i.e. titles of highly-specialized scientific papers; titles of media scientific papers; titles of pseudo-scientific articles, etc.); iii) are they discipline-indicators (i.e. biology titles,

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biochemical titles, medical titles, anthropology titles, etc.). On a preliminary basis and without taking into account the linguistic and extralinguistic context corresponding to each of the titles above, the answer to these questions is not for all cases a definite yes. For example, is title 2) a medical title or a biochemical one? Is title 1) a research paper title or a review paper title? Do titles 8) and 10) give any clues on whether they belong to a research paper, a review paper, a chapter, or a book for peers or for the general public? Naturally, a set of extralinguistic data will provide the necessary information to guarantee that all these requisites permit the titles above to reach the correct audience.

Interestingly, from the structural point of view, the medical titles listed can be considered to be correct as they are constructed following the patterns corresponding to the most recurrent structural configurations within which scientific titles are framed [3]. Such configurations include the nominal (title 3,4,8), question (title 6, first part of title 2 and second part of title 7), compound (title 1,5,7,10), and full-sentence construction (title 9).

However, it is risky to base the assertion that the medical titles listed are correct on structural evidence alone as other variables such as genre, register, functions or purposes of the articles to which the titles listed belong, the type of audience their authors had in mind when they wrote them, not only fuse but also operate hand in hand to make these titles play a key role as i) components of research reporting, ii) facilitators of any kind of medical communication, and iii) responsible agents for gaining readers' attention.

Medical doctors may conclude that all the titles listed on the first page of this article are correct without bearing in mind that the range of readers of medical information includes not only medical doctors but also other potential readers such as librarians, indexers, translators, the general public (including teenagers and children, why not?). Furthermore, and particularly, in the case of librarians, indexers and translators, their role is also crucial in facilitating medical information to reach the correct audience, as well as to effectively circulate within different social environments.

In keeping with our opening metaphor, medical titles are therefore like doors which sometimes open not only naturally but also appropriately and therefore papers reach the correct audience, but sometimes an excellent research work may unjustly get lost simply because its title is faulty. What is it then that makes titles in Medicine either operate successfully or succumb in the attempt to reach the correct audience?

The answer seems to be very easy: medical expertise should fuse with linguistic expertise [4]. The former involves everything that refers to specific medical topics and their corresponding experimental procedures leading to new knowledge. The latter involves everything that refers to the language proper of Medicine, particularly the codes of medical discourse and the rhetoric of Medicine. These two types of expertise move on different pathways but they should operate hand-in-hand to effectively reach the

correct audience. There is a general consensus on this. However, several of us are, in agreement with Crosby [5], surely surprised at "the lack of instruction available on the subject". Concomitantly, Lewison and Hartley [6] observe that there is a good deal of exhortatory advice on how to write effective titles whereas evidence-based studies are not so many.

Fortunately, observations on medical title constructions [7-9], informativity [10], length and presence of colons [6], recurrent words and presence of catch words in them [11,12] have begun to disseminate an attitude of non-indifference towards scientific titles, particularly to medical titles. However, an attitude of this nature will not work unless a pedagogy on the decodification and codification of titles is carefully planned. Such pedagogy will certainly be fruitful on condition that medical doctors co-work with linguists.

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